NUTRITIONAL STATUS OF SCHOOL BOYS IN FIVE VILLAGES OF JABALPUR DISTRICT, MADHYA PRADESH

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Nutrition plays a vital role in the over all development of children. About 80 percent of India lives in villages. Children in village are mostly undernourished and under developed in comparision to their counterparts in urban areas. In villages children burn more calorie in agricultural related household work. Food to them relates to overcome hunger and balance food is a distant dream. These Malnourished and deficient children turn anaemic and often suffer from scruvy, rickets, xeropthalmia, dry skin. Poor growth, performance and attendance in school have much to do with their undernourishment.

Food is a biological need of all living organisms including Man to grow reproduce and lead a healthy life. Food contains various nutrients (protein, fat, carbohydrates, minerals and water) which are required in adequate quantity for normal functioning of the body Anon 1987. Thus "nutritional care" is a serious subject and is referred as the application of the science and out of human nutrition in helping people to select and obtain food for the primary purpose of nourishing their bodies. Malnourishment is observed among people ignoring nutritional care. Malnutrition is a impairment of health resulting from deficiency (under nourishment) excess (over nourishment) or imbalance of nutrients. Malnourishment is observed among people of all ages from child, youth, pregnant to old, but its affect on children and pregnant is more prominent. Malnutrition checks both physical and mental growth in a child. Children are the asset of a any country and their development always concern the policy makers. The present study is focused of the nutritional aspects of school boys between 6 to 12 years of age with the following objectives -

1. To find the food intake of school boys. (6-12 yrs.) in the selected villages.
2. To find the height, weight and haemoglobin level among the school boys (6-12 yrs)

METHODOLOGY

Five villages Gwarighat, Tewar, Tilwara, Barela and Adhartal were selected from the outskirts of Jabalpur city of Madhya Pradesh for the present study. Samples consisted of school boys varying from 6-12 years old. Ten such samples were drawn from each of the selected villages depending on the availability and co-operation. Out of the total sample of 50, 25 samples were taken for analysis on the random basis. The information was collected by 24 hours recall method and by food frequency method of the previous days diet with the aid of questionaire prepared. The samples were also asked dietary questions related to the quantity of food intake of vegetables, fruits, pulses, legumes, fats & oil sugar and milk. Then the total intake of the daily food was calculated and compared with the recommended daily intake of food. Anthropometric measurements like height in centimetres and weight in kilograms were taken and compared with the standard height and weight chart of school boys. Haemoglobin was estimated by haemoglobinometer and was compared with the standard range of haemoglobin of school boys.

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RESULTS AND DISCUSSION

1. Food Groups–Balanced diet at low cost for school boys compared with surveyed school boy's diet.

Table 1. Mean daily intake of food

Foodstuffs	Recommended (g)	Mean daily intake (g)
Cereals	250-320	430
Pulses	70	30
Green leafy Vegetables	75-100	40
Other vegetables and roots & tubers	50-75	100
Fruits	50	-
Fats & Oil	30-35	15
Sugar	50	25
Milk	250	50

(a) Cereals–The mean intake of cereals was more (430g.) compared to the recommended allowance of 250-320g. Rice and wheat formed the main constituents of diet and were taken in more quantity. They provide energy cereals served as food bulk that filled the stomach and energy. It was the quantity that satisfied them.

(b) Pulses–Intake of pulses was 30g less than half of the recommended allowances in all the boys of age group 6-12 years. ICMR recommends the daily intake of 70 g of pulses among school children.

(c) Green Leafy Vegetables–The daily intake of green leafy vegetables was 40g. against the recommended allowance of 75-100 g.

(d) Other Vegetables, Roots & Tubers–Tubers were consumed more (100 g) against the recommended allowance of 50-75g. Potatoes and onions are comparatively cheaper, available and could be easily stored.

(e) Fruits-There is no consumption of fruits. They rarely eat fruits.

(f) Milk–The mean daily intake of milk is just 50g against the recommended allowance of 250g. Less intake of milk is due to high price and less liking. Consumption of milk is in the form of tea. Calcium deficiency among the boys were evident in the form of poor bone formation.

(g) Fat & Oil–The intake of fat & oil is 15g against the recommended allowance of 30-35g fat. Vegetables cooked in fat or oil forms its intake. The parents of most of the sample could not afford it. Deficiency of fats and oil leads to dry skin.

(i) Sugar–Sugar intake is also less (25g) against the recommended allowance of 50 g.

2. Nutritional Supplement–The nutritive value of foods was calculated from the food composition table of Gopalan at as 1989 Edition.

(a) Calories–Intake of calories was found to be much less(1600 Kcal) than the recommended (1800-2100 Kcal) allowances. The reason behind this may be less consumption of fat then the recommended allowances.

(b) Protein–Protein intake was high (54.01g) in all the age groups than the recommended allowances (33-41 g). The protein consumed was not of high biological value as most of it was of plant origin. Many essential amino acids are deficient in protein of plant origin.

(c) Carbohydrate–Carbohydrate consumption was 279.98g. It is through bulk of cereals that is filling.

(d) Fat–Fat is consumed less because of high price. Villagers cannot afford to take fat in normal daily diet.

(e) Calcium–The intake of calcium is very low compared to the normal recommended allowance, this may be due to less intake of milk of their diet. Due to calcium deficiency poor bone formation is seen.

(f) Iron–Intake of iron is not good compared to the recommended allowance due to which anemia is seen in many boys. Green leafy vegetables are consumed less. As we know iron from vegetable source is

absorbed less in the alimentary canal so deficiency is prevalent in boys as they don't have other means of getting iron.

(g) Thiamine–Intake of thiamine is adequate in all age group of boys that is 6-12 years.

(h) Riboflavin–Intake of riboflavin is less than the recommended allowance.

(i) Niacin–Intake of Niacin is adequate, compared with the recommended allowances.

Table 2. Nutritional intake of school boys based on their diet

Nutrients	Recommended	Mean daily intake
Calories (Kcal)	1800-2100	1600
Proteins (g)	33-41	54.01
Fat (g)	-	20.62
Carbohydrates (g)	-	279.98
Calcium (g)	0.4-0.5	0.715
Iron (mg)	15-20	10.2
Thiamine (mg)	0.9-1.0	2.09
Riboflavin (mg)	1.0-1.2	0.67
Niacin.(mg)	10 - 14	12.67

3. Growth Rate–

Table 3. Comparative chart on height and weight parameters of school boys

Age (in years)	Weight (kgs)		Height (cm)	
	Standard	Mean of the samples	Standard	Mean of the samples
5	19.41	13.5	111.3	92.5
6	21.91	14.0	117.5	96.0
7	24.54	17.66	124.1	102.5
8	27.26	21.0	130.0	108.0
9	29.94	22.66	135.5	114.0
10	32.61	25.16	140.3	118.5
11	35.25	26.0	114.2	121.5
12	38.26	27.4	149.6	126.0

4. Haemoglobin Estimation–The standard haemoglobin of boys of age group 6-12 years is 14.5 g/100 ml of blood. The school boys in the selected villages were having haemoglobin much below the normal value.

Table 4. Haemoglobin value of school boys in the selected villages

Age (yrs)	Haemoglobin (Mean of the sample in g.)
5	9.0
6	10.0
7	8.5
8	9.5
9	8.0
10	10.5
11	7.5
12	7.9

CONCLUSION

By the analysis of dietary survey of the school going boys of 5 villages is seen that they do not consume balanced diet. Their food is deficient in many essential nutrients. They do not consume proper amount of recommended food stuffs. Due to this majority of the school going boys are malnourished and suffer from many deficiency diseases like anemia, scuruy, ricket, xeropthalmia, bitats spot, dry skin etc. The height and weight is very less compared to normal height and weight of that particular age. The main reason behind malnourishment are :

1. Inadequate food production.
2. Poverty.
3. Lack of nutrition education.
4. Large family size.

If these reasons are overcomed then there will be improvement in the nutritional status.

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